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NOTES ON GEOGRAPHIC DISTRIBUTION

A new record of *Dinochloa malayana* S.Dransf. (Poaceae, Bambusoideae) from central Sumatra, Indonesia, reveals the continuous distribution of *Dinochloa* in western Malesia

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Abstract. We report a new record of *Dinochloa malayana* S.Dransf. (Poaceae, Bambusoideae) from Sumatra, Indonesia, specifically in Sumpur Kudus, Sijunjung, West Sumatra. This discovery expands the known western range of *Dinochloa* Buse in Malesia. On the mainland of Sumatra, this genus, represented by *D. glabrescens* Widjaja, was previously only reported from Lampung in the south. *Dinochloa* was once thought to have a disjunct distribution in western Malesia, limited to the Malay Peninsula and southern Sumatra. Our new data confirm the continuous distribution of *Dinochloa* throughout western Malesia.

Key words. Bamboo, climbing, disjunct distribution, Sijunjung, taxonomy, West Sumatra

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INTRODUCTION

Dinochloa malayana S.Dransf. (Poaceae, Bambusoideae) is a climbing bamboo native to western Malesia and Thailand with a complex taxonomic history. Holttum (1958) initially identified two distinct species of *Dinochloa* Buse in Peninsular Malaysia, namely *Dinochloa* sp. and *D. scandens* (Blume) Kuntze (based on specimen Ridley 3112). However, Dransfield (1991) later clarified that the *Dinochloa* found in Peninsular Malaysia had been misidentified as *D. scandens*, which is native only to the western part of Java, Indonesia. Dransfield and Widjaja (1995), as also noted by Damayanto et al. (2021), confirmed that *D. scandens* is endemic to Java and that reports of its presence elsewhere in Southeast Asia were incorrect. Dransfield (1996a) then described *D. malayana*, using Ridley 3112 [Royal Botanic Gardens, Kew (K), Singapore Botanic Gardens (SING)] as the type specimen and added details on the culm leaves based on the specimen Dransfield SD915a [Royal Botanic Gardens, Kew (K); Forest Research Institute Malaysia (KEP)].

Previous studies reported the distribution of *D. malayana* as being confined to southern Thailand, Peninsular Malaysia, and the Riau Archipelago (including Karimun Anak and Batam Islands) (Turner 1995; Dransfield 1996a, 1996b; Chua et al. 2005; Neamsuvan and Tanthien 2015; Vorontsova et al. 2016; Damayanto 2018a; Damayanto et al. 2019; Girmansyah et al. 2019). However, recent findings have broadened its known range in Malesia. During our 2024 exploration in West Sumatra, Indonesia, *D. malayana* was discovered in this area. Previously, the genus *Dinochloa* was thought to have a disjunct distribution in western Malesia, limited to the Malay Peninsula and southern Sumatra. Our new finding, however, confirms the continuous distribution of *Dinochloa* throughout western Malesia. In this study, we report *D. malayana* for the first time from the central part of mainland Sumatra and provide a thorough morphological description and photograph of the species.

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METHODS

We conducted a botanical exploration for bamboo species in Sumpur Kudus Village, Sijunjung, West Sumatra Province, Indonesia, in 2024. Bamboo samples were collected for herbarium specimens and

deposited in the Herbarium Universitas Andalas (ANDA) and Herbarium Bogoriense (BO). Detailed data were documented, and the bamboos were photographed while still in their fresh state. We also studied herbarium specimens, both physical and digital, housed at Herbarium Universitas Andalas (ANDA), Herbarium Bogoriense (BO), Royal Botanic Gardens, Kew (K), Naturalis Biodiversity Center (L), and Naturhistorisches Museum Wien (W). Herbarium codes adhere to the Index Herbariorum (Thiers 2024). High-resolution herbarium images were accessed online through the Global Biodiversity Information Facility (GBIF), JSTOR's Global Plants, Kew Data Portal, Naturalis Bioportal, and Tropicos (Damayanto and Irsyam 2022). All specimens were re-identified by comparing research specimens with type specimens, reference specimens at ANDA and BO herbaria, and high-resolution digital images from online databases. Specimen label data were recorded. Additionally, literature from relevant sources was reviewed and included Turner (1995), Dransfield (1996a, 1996b), Chua et al. (2005), Sungkaew et al. (2009), Neamsuvan and Tanthien (2015), Vorontsova et al. (2016), Zhou et al. (2017), Damayanto (2018a), Damayanto et al. (2019), Goh et al. (2013, 2020), Chalopin et al. (2021), and Liu et al. (2023).

The conservation status of the species was assessed using International Union for Conservation of Nature (IUCN 2024) criteria, specifically criterion B, which includes habitat quality, extent of occurrence (EOO), and area of occupancy (AOO). AOO and EOO were calculated using the Geospatial Conservation Assessment Tool (Bachman et al. 2011; GeoCAT 2024). The spatial distribution was analyzed using QGIS Hannover v. 3.16 software (QGIS 2024). This paper was refined using AI language assistance (Gemini) and subsequently subjected to a rigorous review to ensure accuracy and clarity of content.

RESULTS

***Dinochloa malayana* S.Dransf.**
Figure 1

New records. INDONESIA – West Sumatra • Sijunjung Regency, Sumpur Kudus Village; 00°27′04.2″S, 100°52′58.8″E; 722 m a.s.l.; 9.VIII.2024; M.A. Ritonga leg.; 112; ANDA, BO.

Identification. Sympodial, climbing up to 5 m high. Shoots pale green to yellowish green, with maroon culm-sheath, covered with white wax and hairs, rough when young and becoming smooth when mature; blade deflexed. Culms green, 1.4–1.6 cm in diameter, internode 24–25 cm long. Branch with one dominant branch surrounded by several smaller branches. Culm-sheath caducous, 6.8–8.5 × 2.0–3.6 cm, initially purplish green but turning brown with maturity; auricles inconspicuous, without bristles; ligule up to 1 mm high, entire, without bristles; blades lanceolate, 4.0–6.7 × 0.5–1.0 cm, initially purplish green but turning green with maturity, caducous, deflexed. Leaves broadly lanceolate, 13.6–25.0 × 2.0–5.0 cm; leaf-sheath auricles less than 1 mm high with bristles 0.4–0.8 mm long; ligule entire, less than 1 mm high, without bristles. Inflorescence unavailable. Based on Dransfield (1996a), inflorescence up to 1.1 m long; spikelets glabrous, up to 3.0 mm long.

Updated global distribution and habitat. *Dinochloa malayana* is distributed in Thailand (Khao Phanom Bencha, Ko Talibung, Langsuan, Surat Thani, and Nakhon Si Thammarat), Malaysia (Perak, Pangkor, Mount Pulai, Pahang, Kelantan, Johor, Langkawi Island, Redang Island, Perlis, and Khao Luang), and Indonesia (West Sumatra, Karimun Anak Island, and Batam Island) (Figure 2). In Thailand, it lives in both undisturbed and disturbed forests or secondary forests up to an altitude of 1300 m a.s.l. In Malaysia, *D. malayana* has been found in forest margin at an altitude of 10–500 m a.s.l. In Indonesia, it was observed in disturbed forests, near stream, and near villages on hills (Figure 3) at an altitude of 60–722 m a.s.l.

Preliminary conservation status. The EOO, encompassing all known occurrences of *D. malayana* in sourthern Thailand, Peninsula Malaysia, and Indonesia, is 597,531 km^2, which qualifies it as Least Concern according to the B criterion of the IUCN Red List. This species' AOO is 120 km^2, placing it in the Endangered category under the same criterion. Information on the population size, distribution, and life cycle of *D. malayana* is lacking. The threat of habitat decline may not be fully assessed. Based on current data and IUCN Red List guidelines, *D. malayana* is preliminary categorized as Least Concern.

DISCUSSION

Prior research indicated that the distribution of *Dinochloa malayana* was restricted to Southern Thailand, Peninsular Malaysia, and the Indonesian Riau Archipelago, which includes Karimun Anak and Batam Islands (Turner 1995; Dransfield 1996a, 1996b; Chua et al. 2005; Neamsuvan and Tanthien 2015; Vorontsova et al. 2016; Damayanto 2018a; Damayanto et al. 2019). However, our recent findings of *D. malayana* in Sumatra have broadened its known range in Malesia. Here, we report *D. malayana* from the mainland of Sumatra for the first time.

Previously, the genus *Dinochloa* was thought to have a disjunct distribution in western Malesia, limited

Figure 1. *Dinochloa malayana*. **A.** Habit. **B.** Shoot. **C.** Young culm-sheath. **D.** Mature culm-sheath. **E.** Detail of culm-sheath auricle. **F.** Internode, showing 'girdle'. **G.** Dominant branch with several smaller branches. **H.** Leaf branches. **I.** Leaves. Photographs: Muhammad Azli Ritonga.

to the Malay Peninsula, its satellite islands, and southern Sumatra (Damayanto and Fefirenta 2021) (Figure 4). On the mainland of Sumatra, this genus, represented by *D. glabrescens* Widjaja, was only reported from Lampung in the south, where this species is endemic (Widjaja 1997; Damayanto 2018a; Widjaja 2019; Ritonga et al. 2024). Rahayu and Ervianti (2020) had previously documented the presence of an unknown species of *Dinochloa* in Lampung, and while it is plausible that this species could be *D. glabrescens*, verification is necessary to confirm this possibility. Additionally, Sujarwanta and Zen (2020a, 2020b) reported finding *D. scandens* in Lampung. However, Damayanto et al. (2021) suggested that Sujarwanta and Zen's material was likely *D. glabrescens*, not *D. scandens*. *Dinochloa scandens* is endemic to western Java (Damayanto et al. 2021). Prior to the discovery of *D. malayana*, *D. glabrescens* was the only known *Dinochloa* species inhabiting the main island of Sumatra (Ritonga et al. 2024).

Our new finding of *D. malayana* in central mainland Sumatra confirms the continuous distribution of *Dinochloa* throughout western Malesia (Figure 4). However, there are still no reports of the existence of *Dinochloa* species in the northern part of the main island of Sumatra. Previous studies (Damayanto 2018b;

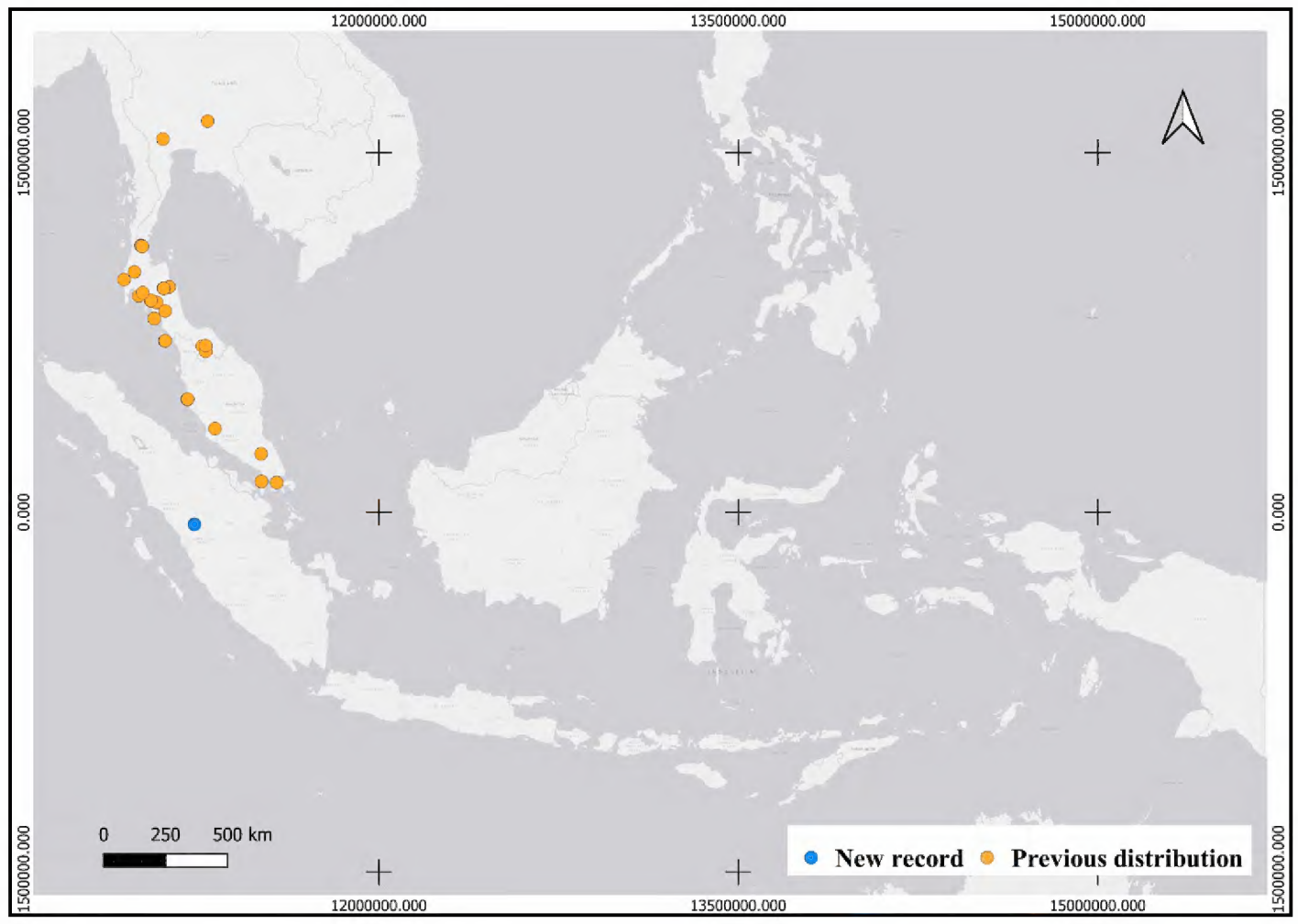

Figure 2. Distribution of *Dinochloa malayana*, shown by the population recorded in Malaysia, Indonesia, and Thailand.

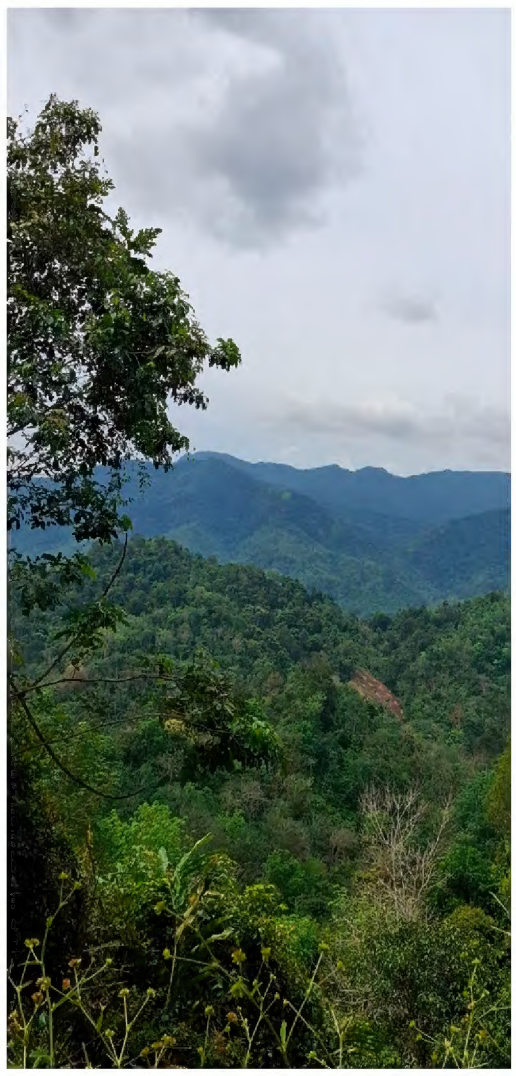

Figure 3. Habitat of *Dinochloa malayana* in West Sumatra. Photograph: Muhammad Azli Ritonga.

Ritonga et al. 2020a, 2020b, 2020c, 2023a, 2023b) have explored bamboo diversity in northern Sumatra and surrounding islands, including Weh Island, but have yet to uncover any *Dinochloa* species. A similar pattern is observed in the Lesser Sunda Islands (Damayanto 2024), where *Dinochloa* species are discontinuously distributed on islands like Bali, Flores, Sumba, and Tanimbar, but absent from the intervening islands such as Lombok, Sumbawa, and Timor (Figure 4). Damayanto (2024) and Damayanto et al. (2020) suggested that this distribution gap is likely due to limited exploration in these areas. The recent discovery of *D. malayana* in central Sumatra suggests that further exploration in the northern region may yield more findings of *Dinochloa*. On the other hand, three species from Hainan, China, and formerly classified as *Dinochloa*, have recently been reclassified into the genus *Melocalamus* Benth. (Liu et al. 2023). This taxonomic study has consequently removed Hainan from the known distribution range of *Dinochloa* (Figure 4).

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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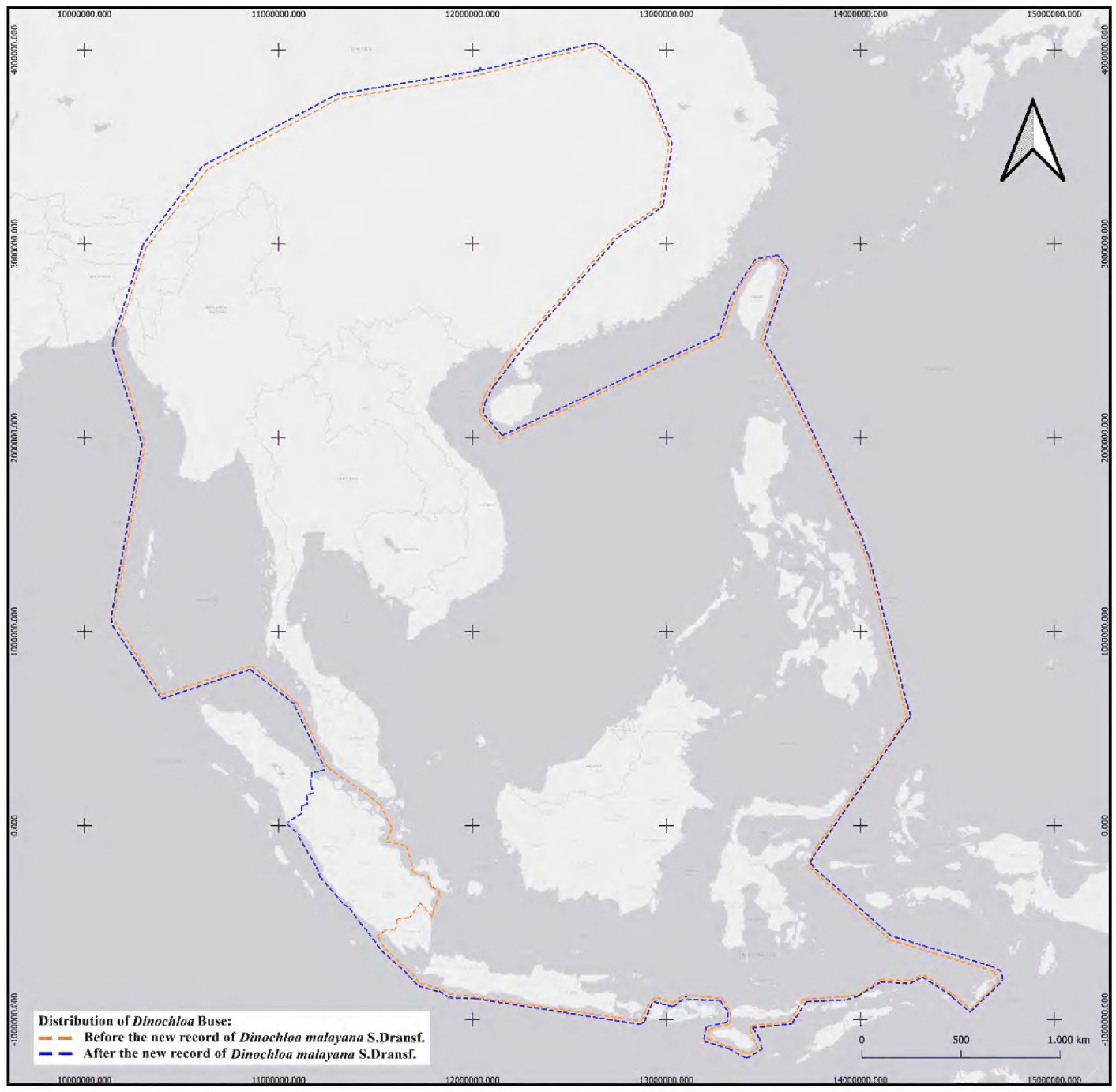

Figure 4. Global distribution of the genus *Dinochloa* Buse before (Orange color) and after (Blue color) the new record of *Dinochloa malayana* in central part of main island of Sumatra.

Author contributions

Conceptualization: MAR, S, N, TM, IPGPD. Data curation: MAR, IPGPD. Formal analysis: MAR. Funding acquisition: MAR, S, N, TM. Exploration: MAR. Methodology: MAR, IPGPD. Resources: MAR, S, N, TM. Supervision: MAR, S, N, TM, IPGPD. Visualization: MAR, IPGPD. Project administration: MAR, S. Software: MAR, IPGPD. Validation: MAR, IPGPD. Writing – original draft: MAR, IPGPD. Writing – review and editing: MAR, S, N, TM, IPGPD.

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Data availability

All data that support the findings of this study are available in the main text.

REFERENCES

Bachman S, Moat J, Hill AW, de la Torre J, Scott B (2011) Supporting red list threat assessments with GeoCAT: geospatial conservation assessment tool. ZooKeys 150: 117–126. https://doi.org/10.3897/zookeys.150.2109

Chalopin D, Clark LG, Wysocki WP, Park M, Duvall MR and Bennetzen JL (2021) Integrated genomic analyses from low-depth sequencing help resolve phylogenetic incongruence in the bamboos (Poaceae: Bambusoideae). Frontiers in Plant Science 12: 725728. https://doi.org/10.3389/fpls.2021.725728

Chua LSL, Kamarudin S, Markandan M, Hamidah M (2005) A preliminary checklist of vascular plants at the Machinchang Range, Pulau Langkawi, Peninsular Malaysia. Malayan Nature Journal 57 (2): 155–172.

Damayanto IPGP (2018a) *Dinochloa malayana* S.Dransf. (Poaceae: Bambusoideae), a new record for Indonesia. Reinwardtia 17 (1): 35–37. https://doi.org/10.55981/reinwardtia.2018.3351

Damayanto IPGP (2018b). Koleksi bambu Taman Eden 100, Kabupaten Toba Samosir, Sumatera Utara dan perannya dalam taman. Jurnal Arsitektur Lansekap 4 (2): 210–218. https://doi.org/10.24843/JAL.2018.v04.i02.p11

Damayanto IPGP (2024) Keanekaragaman jenis bambu (Poaceae-Bambusoideae) Kepulauan Sunda Kecil. PhD's thesis, IPB University, Bogor, Indonesia, 210 pp.

Damayanto IPGP, Dalimunthe SH, Megawati (2021) *Dinochloa scandens* (Poaceae-Bambusoideae): distribution, habitat preference, and notes on synonymy. Jurnal Biodjati 6 (2): 174–189. https://doi.org/10.15575/biodjati.v6i2.12485

Damayanto IPGP, Fefirenta AD (2021) Pola persebaran marga bambu di Indonesia. In: Prosiding Seminar Nasional Biologi, Makassar, Indonesia, 24–41.

Damayanto IPGP, Irsyam ASD (2022) Penelusuran spesimen herbarium dalam jaringan. Baca: Jurnal Dokumentasi dan Informasi 43 (1): 15–32. https://doi.org/10.14203/j.baca.v43i1.848

Damayanto IPGP, Rahmawati K, Girmansyah D (2019) Batam Botanic Garden, Indonesia: recommendation for its living collections from Riau Archipelago exploration. In: Proceedings the Third Satreps Conference, Bogor, Indonesia, 92–101.

Damayanto IPGP, Rustiami H, Miftahudin, Chikmawati T (2020) A synopsis of Bambusoideae (Poaceae) in Lombok, Indonesia. Biodiversitas Journal of Biological Diversity 21 (10): 4489–4500. https://doi.org/10.13057/biodiv/d211004

Dransfield S (1991) Bamboo resources in Thailand: how much do we know. In: Proceedings Fourth International Bamboo Workshop, Bangkok, Thailand, 1–4.

Dransfield S (1996a) New species of *Dinochloa* (Gramineae-Bambusoideae) in Malesia and notes on the genus. Kew Bulletin 51 (1): 103–117. https://doi.org/10.2307/4118748

Dransfield S (1996b) Report on the fieldtrip to Southern Thailand 2 to 29 April 1996. Thai Forest Bulletin (Botany) 24: 66–71.

Dransfield S, Widjaja EA (1995) Plant resources of South-East Asia no. 7 bamboos. Backhuys Publishers, Leiden, 150 pp.

GeoCAT (2024) GeoCAT, geospatial conservation assessment tool. https://geocat.iucnredlist.org. Accessed on: 2024-8-17.

Girmansyah D, Damayanto IPGP, Rahmawati K, Arimukti SD, Setiawan M (2019) Status keanekaragaman jenis dan potensi flora di Kepulauan Karimun, Provinsi Kepulauan Riau. In: Prosiding Seminar Nasional Konservasi dan Pemanfaatan Tumbuhan dan Satwa Liar, Bogor, Indonesia, 169–176.

Goh WL, Chandran S, Franklin DC, Isagi Y, Koshy KC, Sungkaew S, Yang HQ, Xia NH, Wong KM (2013) Multi-gene region phylogenetic analyses suggest reticulate evolution and a clade of Australian origin among paleotropical woody bamboos (Poaceae: Bambusoideae: Bambuseae). Plant Systematics and Evolution 299: 239–257. https://doi.org/10.1007/s00606-012-0718-1

Goh WL, Sungkaew S, Teerawatananon A, Ohrnberger D, Widjaja EA, Sabu KK, Gopakumar B, Koshy KC, Xia NH, Wong KM (2020) The phylogenetic position and taxonomic status of the Southeast and South Asian bamboo genera *Neohouzeaua* and *Ochlandra* (Poaceae: Bambusoideae). Phytotaxa 472 (2): 107–122. https://doi.org/10.11646/phytotaxa.472.2.2

Holttum RE (1958) The bamboos of the Malay Peninsula. Gardens' Bulletin Singapore 16: 81–85.

IUCN (International Union for Conservation of Nature) (2024) Guidelines for using the IUCN red list categories and criteria. Version 16. Prepared by the Standards and Petitions Committee. https://www.iucnredlist.org/documents/RedListGuidelines.pdf. Accessed on: 2024-8-17.

Liu JX, Xu ZC, Zhang YX, Zhou MY, Li DZ (2023) The identity of *Dinochloa* species and enumeration of *Melocalamus* (Poaceae: Bambusoideae) in China. Plant Diversity 45 (2): 133–146. https://doi.org/10.1016/j.pld.2022.07.001

Neamsuvan O, Tanthien S (2015) Medicinal plants used for women's healthcare from Khao Phanom Bencha National Park, Krabi Province. Burapha Science Journal 20 (1): 118–132.

QGIS (2024) QGIS Geographic Information System. QGIS Association. http://www.qgis.org. Accessed on: 2024-8-17.

Rahayu Y, Ervianti D (2020) Bamboos of the Batu Putu Biodiversity Park Lampung. Bioma 16 (1): 14–20. https://doi.org/10.21009/Bioma16(1).2

Ritonga MA, Navia ZI, Arico Z (2020a) Pemanfaatan bambu oleh masyarakat di Kecamatan Tenggulun, Kabupaten Aceh Tamiang. Jurnal Biologica Samudra 2 (1): 10–19. https://doi.org/10.33059/jbs.v2i1.2232

Ritonga MA, Navia ZI, Arico Z, Damayanto IPGP (2020b) Keragaman jenis bambu di Kawasan Ekosistem Leuser, Kecamatan Tenggulun, Kabupaten Aceh Tamiang, Aceh. Buletin Plasma Nutfah 26 (2): 109–122. https://doi.org/10.21082/blpn.v26n2.2020.p109-122

Ritonga MA, Nurchalidah S, Karmiati, Navia ZI, Suwardi AB (2020c) Penelusuran ragam jenis bambu di Kota Langsa, Aceh. Al-Hayat: Journal of Biology and Applied Biology 3 (1): 8–14. https://doi.org/10.21580/ah.v3i1.6065

Ritonga MA, Syamsuardi, Nurainas, Damayanto IPGP (2023a) Bamboo diversity in Weh Island, Aceh, Indonesia. Biodiversitas Journal of Biological Diversity 24 (5): 2563–2576. https://doi.org/10.13057/biodiv/d240508

Ritonga MA, Syamsuardi, Nurainas, Damayanto IPGP (2023b) Ethnobotany of bamboo on Weh Island, Aceh, Indonesia. Ethnobotany Research and Applications 26 (75): 1–19. https://doi.org/10.32859/era.26.75.1-19

Ritonga MA, Syamsuardi, Nurainas, Damayanto IPGP (2024) Diversity status of bamboo in Sumatra: A review. Journal of Tropical Biodiversity and Biotechnology 9 (4): 1–21. https://doi.org/10.22146/jtbb.90323

Sujarwanta A, Zen S (2020a) Identifikasi jenis dan potensi bambu (*Bambusa* sp.) sebagai senyawa antimalaria. Bioedukasi 11 (2): 131–15. https://doi.org/10.24127/bioedukasi.v11i2.3423

Sujarwanta A, Zen S (2020b) Etnobotani tanaman bambu di Kecamatan Semaka Kabupaten Tanggamus Provinsi Lampung. https://repository.ummetro.ac.id/files/artikel/8df285eb1c39736c473453aa096fcacc.pdf. Accessed on: 2024-8-17.

Sungkaew S, Stapleton CMA, Salamin N, Hodkinson TR (2009) Non-monophyly of the woody bamboos (Bambuseae; Poaceae): a multi-gene region phylogenetic analysis of Bambusoideae s.s. Journal of Plant Research 122: 95–108. https://doi.org/10.1007/s10265-008-0192-6

Thiers BM (2024) Index Herbariorum. https://sweetgum.nybg.org/science/ih/. Accessed on: 2024-8-17.

Turner IM (1995). A catalogue of the vascular plants of Malaya. Gardens' Bulletin Singapore 47 (1): 1–757.

Vorontsova M, Clark LG, Dransfield J, Govaerts R, Baker WJ (2016) World checklist of bamboo and rattans. INBAR Technical Report 37: 1–454.

Widjaja EA (1997) New taxa in Indonesian bamboos. Reinwardtia 11 (2): 57–152. https://doi.org/10.55981/reinwardtia.1997.588

Widjaja EA (2019) The Spectacular Indonesian Bamboos. Polagrade, Jakarta, Indonesia, 188 pp.

Zhou MY, Zhang YX, Haevermans T, Li DZ (2017) Towards a complete generic-level plastid phylogeny of the paleotropical woody bamboos (Poaceae: Bambusoideae). Taxon 66: 539–553. https://doi.org/10.12705/663.2